

nearly all such goods were imported, and even now the entire product of many of the American silk mills is represented to the consumer as of European make. The Silk Association have, however, bestirred themselves; they find that in order to obtain a standing in a market where imported articles hold an established reputation they are obliged to make better fabrics than their foreign rivals, and, naturally enough, they now seek to secure for themselves the credit of their enterprise. The Centennial Exhibition startled the manufacturers both of this country and of France with the extent and rapidity of their progress in developing this special branch of industry. The railways across the Continent and the direct trade with Asia across the Pacific Ocean have placed America more nearly on a level with European countries as regards supplies of raw silk; improvements in the power-loom and the continuance of the tariff policy of the Government have done the rest. Mr. Wyckoff boldly states that had that policy vacillated during the last ten or fifteen years there would have been no story of improvement to tell.

One of the main difficulties with which the American manufacturer had to contend was the want of skilled labour, and this was more especially felt in the production of black dress goods. On account of the necessity of securing perfect equality in the threads, such goods are far more difficult to produce than are more highly ornamented fabrics, but although the manufacture of broad black silks on anything like a large scale has only been attempted in America during the last half-dozen years it is estimated that fully a third of the plain silks and a much larger proportion of the brocade silks which are consumed in that country are made there. Indeed Mr. Wyckoff states that the advance in this branch of manufacture within the last three years is greater than that in any other department of American silk industry. Nor is the reason for this far to seek. The American manufacturers, as a class, have studiously set their faces against the abominable system of "loading" which prevails so largely on this side the Atlantic. Nearly all European broad black silks are doubled, nay, sometimes even trebled, in weight in the dyeing of the yarn. This is how the "Black Art" is practised in France. The yarn is repeatedly dipped in nitrate of iron until sufficiently weighted, after which it is passed through a bath of prussiate of potash and then treated with gambier and acetate of iron. To brighten it it is next passed through a logwood bath and well soaped; if it is to be soft and satin-like it is oiled and treated with soda; if it is to be stiff and rustling it is dipped in acid. No wonder after this that the black silk with its load of grease and iron wears shiny, and cracks in the folds. "It is asking too much to demand that the few strands shall act as iron-mine, soap-factory, and chemical laboratory all at once and stand the wear of practical use besides. These are requirements before which the English attempt to make a grocery store out of a shirt pattern is a simple and ordinary matter." Nothing is easier, however, than to discover this loading of dye-stuff. If ladies would insist on being allowed to test a small sample of the silk, at home, before purchasing, by the very simple operation of burning it, the sophistication would speedily perish. Pure silk crisps instantly on burning, and leaves a small quantity of charcoal; loaded silk smoulders

slowly to a yellow ash. Not many years ago men's coats were largely trimmed with black silk braid; but now, as a maker in the article was heard dolefully to declare, "the trade in black braids is as dead as Julius Cæsar," for we have naturally got disgusted with the frayed and brown appearance which the article generally assumes after a week or two's wear, thanks to the fact that it usually contains more dye-stuff than silk. The public is gradually awakening to a knowledge of these things, just as surely as the patient Hindoo and the heathen Chinee have had their eyes opened to that miserable compound of starch, cotton, China clay, and Epsom salts which the Manchester merchants have palmed off upon them as genuine shirtings.

Let the silk manufacturers take warning: to meet falling markets with inferior goods dressed and dodged so as to simulate a better article is simply to hasten on the time of trouble and disaster. Markets have reputations as tender as that of Cæsar's wife. If such malpractices continue we shall soon be clamouring, in the interests of commercial morality and of national prosperity, for an extension of the Adulteration Act from our Food to our Clothes.

#### DARWINISM AND OTHER ESSAYS

*Darwinism and other Essays.* By John Fiske, M.A., LL.B., formerly Lecturer on Philosophy, Instructor in History, and Assistant-Librarian at Harvard University. (London: Macmillan and Co., 1879.)

TO readers of NATURE there is nothing new and little very striking in these essays, and it is only justice to Mr. Fiske to remark that the title of the first, which gives its name to the volume, claims nothing of the sort. The most interesting consideration in the four papers upon the subject is the marvellous way in which every science and line of thought, both in natural history and in human history, have entirely changed their aspect and started in a new direction since the publication of "The Origin of Species." One fourth of the book is a review of Mr. Buckle's "History of Civilisation," written and published by Mr. Fiske when he was nineteen years old: the object of reprinting which now it is hard to see. Yet it is interesting read in immediate juxtaposition with the chapters on Darwinism, for nothing could show so distinctly how high and dry the stream of knowledge has left the whole theory of a work most celebrated only twenty years ago. Buckle's book, the theorem of which was that there is a science of history, the laws of which are as uniform and invariable as those of mechanics or astronomy, if only we could discover and measure all the various forces at work, was an energetic effort in the right direction, and was gladly welcomed by many scientific men of the day. But the key to the puzzle had not then been found. Had Buckle lived in these days, when the works of Darwin, Herbert Spencer, and Sir H. Maine are familiar, he would, no doubt, have built up a far more coherent theory than he did.

In two other papers in this volume we find development working in two very different spheres, viz., in the production of a nation, in the account of "The Races of the Danube," and in the production of a catalogue, in his description of a "Librarian's Work." Had Mr. Fiske

carried out the former more in the spirit of Buckle and Darwin, it would have added greatly to the interest of the paper and to the coherency of the book. There is also a fairly contemptuous article on "Psychic" force and its manifestations, as described by those who believe in it. His "Crumb for the Symposium" is certainly a dry one ; his arguments throw no light on a very dark subject ; but he draws an agreeable contrast between ten disputants on the subject of a future life meeting in the sixteenth century, and adjourning to some ecclesiastical court preparatory to a final settlement at Smithfield, with their now forming a symposium for a fair discussion in *The Nineteenth Century*.

Scattered through the book are many eloquent passages of scientific teaching. There is a striking description (p. 18) of the changes the surface of the earth has undergone, which might have prompted Byron's lines on the changelessness of the ocean. One cannot but expect good teaching from a man who lays down the excellent rules and takes the high standard of both learning and teaching truth which Mr. Fiske does, in his affectionate notice of Mr. Chauncey Wright, an eminent specimen of a class of men who, though little thought of and almost unknown individually, are yet the "good belly" which absorbs and distributes all the fresh acquisitions of more active and enterprising "members" of society. And the most valuable habit of mind in such persons is the kind of scepticism recommended by Mr. Buckle, though Mr. Fiske hardly seems to comprehend the feeling, which consists in distrusting received opinions as final; not in refusing to hold any opinions at all, but in being ready to doubt as soon as any good reason is offered. A theory, like a fire, is a very good servant but a very bad master, and true scepticism consists in willingness to give up a theory as soon as facts are brought out with which it is inconsistent. Mr. Fiske praises this high quality in Darwin (p. 34), but in other passages in his book it would appear that he urged a spirit of doubting old axioms only. He seems to think it right to put full faith in a newly-formed opinion, and to "repose" upon it (p. 175). One would have thought that the severe criticisms in his larger work, on Comte's premature conclusions, would have led him to be less confident in scientific "truths," and it is curious to see the spirit that ruled Mr. Chauncey Wright praised by a man who has confidently laid down a cosmic philosophy. Still the harm is not in airing cosmic theories—there are many valuable advantages in doing that—but in clinging to them, as human weakness is only too apt to do when they are no longer consistent with latest observations.

#### OUR BOOK SHELF

*A Ministry of Health, and other Addresses.* By B. W. Richardson, M.D., F.R.S. (London : Chatto and Windus, 1879.)

THIS is a collection of addresses given by Dr. Richardson, mostly in his capacity of propagandist of sound ideas as to individual and especially national health. In the lecture which gives the title to the volume he advocates the national urgency for a responsible minister of health, not so much to obtain new sanitary laws as to enforce the multitude of existing laws on the subject, which, from the want of any central authority, are at present a dead letter. Dr. Richardson's arguments are forcible, and must be convincing to any

unprejudiced mind, and we trust that ere long his recommendations will be given practical effect to. The second paper is a sympathetic and extremely interesting sketch of the life and work of William Harvey, the model physician, teacher, and public man of his time. The other lectures are : "A Homily Clerico-Medical," "Learning and Health" (in which some valuable hints as to educational methods are given), "Vitality, Individual and National," "The World of Physic," "Burial, Embalming, and Cremation," "Registration of Disease," "Ether-Drinking, and Extra-Alcoholic Intoxication."

*Frozen Asia: a Sketch of Modern Siberia.* By C. H. Eden. (London : S.P.C.K.)

MR. EDEN has collected in this neat little volume a good deal of valuable information concerning Siberia. The information, however, is somewhat fragmentary in its nature, and not well digested in parts, long quotations from books and journals and daily papers being indulged in. Mr. Eden, in his account of recent explorations, confines himself to a few voyages (mainly Nordenskjöld's) along the coast, ignoring all that has been done in the interior. He, we regret to see, makes use of that most vicious and misleading term, "Turanian," and actually talks of certain quite unrelated peoples as belonging to a mythical "Turanian Stock." The sooner the word is banished from ethnological terminology, the better for the progress of the science. The book, so far as it goes, contains much trustworthy information.

*Jack's Education; or, How he Learnt Farming.* By Prof. H. Tanner, F.C.S. (London : Chapman and Hall, 1879.)

PROF. TANNER has put together, in the form of a really readable story, a series of papers for the purpose of showing the manner in which the science classes and the Government Department of Art enable a youth to prepare himself for the Government Scholarships, and by a tolerably complete course of science instruction qualify him for learning any industrial occupation with a thoroughly intelligent mind. The instruction in science given in colleges is reviewed from the standpoint of practical requirement, and with special regard to such a course of study being rendered most valuable as a preparation for learning any commercial industry. The story is both instructive and interesting, and we recommend it to all interested in "technical" education.

#### LETTERS TO THE EDITOR

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.*]

[*The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to ensure the appearance even of communications containing interesting and novel facts.*]

#### Greenwich Meteorological Observations

THE notice of the recently published "Reduction of Greenwich Meteorological Observations," NATURE, vol. xx. p. 525, contains remarks which seem to show misconception in regard to some points of the work. On these the Astronomer-Royal has requested me to offer suitable explanation.

Some criticisms, p. 526, on the table of mean air-temperatures deduced from eye-observations (Table 125), terminate with the remark that the mean temperatures for Greenwich "remain still to be calculated." But it appears to be overlooked that a complete table of standard mean temperatures, daily and monthly, deduced from the photographic records for the twenty years, 1849 to 1868 (from twenty-four readings on each day), is to be found on p. 49 (Table 77). In forming the daily means, values for the few days on which no photographic value was available were derived from the eye-observations; the results thus completely represent the period 1849-1868, and will form